

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO**

UNITED STATES OF AMERICA,

Plaintiff,

vs.

CR. No. 10-2734 JCH

JOHN CHARLES McCLUSKEY,

Defendant.

MEMORANDUM OPINION AND ORDER

This matter is before the Court on three motions by the Government, to exclude three of Defendant's expert witnesses: Laurence Mueller [Doc. No. 539], Simon Cole [Doc. No. 538], and Adina Schwartz [Doc. No. 537].

Regarding Laurence Mueller, the Government filed *United States' Motion To Exclude Defense Witness Laurence Mueller*. [Doc. No. 539, filed June 15, 2012] Defendant filed a Response [Doc. No. 584, filed July 24, 2012], and the Government filed a Reply [Doc. No. 635, filed August 17, 2012].

Regarding Simon Cole, the Government filed *United States' Motion To Exclude Defense Witness Simon Cole*. [Doc. No. 538, filed June 15, 2012] Defendant filed a Response [Doc. No. 583, filed July 23, 2012], and the Government filed a Reply [Doc. No. 634, filed August 17, 2012].

Regarding Adina Schwartz, the Government filed *United States' Motion To Exclude Defense Witness Adina Schwartz*. [Doc. No. 537, filed June 15, 2012] Defendant filed a Response [Doc. No. 582, filed July 23, 2012], and the Government filed a Reply [Doc. No. 633, filed August 17, 2012].

The Government moves to excludes trial testimony from each of the three witnesses on the same three grounds, arguing that: (1) there was a discovery violation under Federal Rule of

Criminal Procedure 16; (2) the defense witness is not qualified as an expert; and (3) the proposed testimony is not admissible under Rule 702 and *Daubert*. The Government states that it does not oppose presentation of testimony by these witnesses at a *Daubert* hearing, but only opposes them testifying at trial. [Doc. No. 539, p. 3; Doc. No. 538, p. 3; Doc. No. 537, p. 3]

The Court has reviewed the parties' filings and the relevant law. The Court denies the Government's motions to exclude these witnesses, but imposes limitations on the subjects of their testimony as specifically set forth below.

I. ADEQUACY OF DISCLOSURE PROVIDED BY DEFENDANT

The Government argues that the testimony of each of these three defense witnesses should be excluded under Federal Rule of Criminal Procedure 16 on two grounds, asserting that: (1) Defendant failed to file a timely Rule 16 notice; and (2) Defendant's disclosure was insufficient. The Court rejects both arguments, concluding that Defendant's Rule 16 disclosure was both timely and sufficient.

A. Timeliness of Defendant's Rule 16 Notice

The Government asserts that Defendant failed to comply with the time limits set by the Court's scheduling orders and Rule 16. [Doc. No. 539, pp. 2, 6; Doc. No. 538, pp. 2, 6; Doc. No. 537, pp. 2, 6-7] The Government also states that Defendant failed to file a timely Rule 16 notice with the Court.

Defendant responds that his Rule 16 notice was timely, with service on the Government on April 23, 2012. [Doc. No. 584, p. 2 n.1; Doc. No. 583, p. 2 n.1; Doc. No. 582-1 (copy of April 23, 2012 letter attached as exhibit)] Defendant correctly responds that a Rule 16 notice is not required to be filed with the Court.

The Court observes that the Government, in its Replies, does not dispute that it received

Defendant's April 23, 2012 notice listing Mueller, Cole, and Schwartz as expert witnesses. The Court therefore concludes that Defendant's Rule 16 notice was timely, meeting the April 23, 2012 deadline set by the Court's scheduling orders [Doc. Nos. 220, 385].

B. Sufficiency of Defendant's Rule 16 Disclosure

The Government further asserts that Defendant failed to comply with the Rule 16 requirement to provide the bases and reasons for the opinions of these three witnesses, and also failed to provide foundational data. [Doc. No. 539, p. 6; Doc. No. 538, p. 6; Doc. No. 537, p. 7] The Government states that Defendant provided "only a declaration and CV" from each witness. [*Id.*]

Under the reciprocal discovery obligations of Rule 16(b)(1)(C)(i), Defendant was required to disclose expert evidence to be presented at trial under Rules 702, 703, or 705. [Doc. No. 203, p. 1 (Defendant deemed to request discovery unless waiver filed); Doc. No. 442, p. 2 (Defendant acknowledges that he did not file a waiver)] In civil cases, Rule 26 requires a "written report" containing "a complete statement of all opinions the witness will express and the basis and reasons for them." Fed. R. Civ. P. 26(a)(2)(B)(i). The requirements in criminal cases are more limited; Rule 16 requires only "a written summary" including "the witness's opinions, the bases and reasons for those opinions, and the witness's qualifications." Fed. R. Crim. P. 16(a)(1)(G). Rule 16 disclosure is designed to give the opposing party notice, permitting preparation for cross-examination and presentation of opposing experts. *See* Fed. R. Crim. P. 16 advisory committee's notes to 1993 amendment. Detailed, extensive discussion is not required in the Rule 16 summary: "Although the summary required by Rule 16 provides the defense with some notice, the requirement of setting forth 'the bases and reasons for' the witnesses' opinions does not track the methodological factors set forth by the Daubert Court." Margaret A. Berger, *Procedural Paradigms for Applying the*

Daubert Test, 78 Minn. L. Rev. 1345, 1360 (1994); *see United States v. Nacchio*, 555 F.3d 1234, 1263-64 (10th Cir. 2009) (McConnell, J., dissenting) (Rule 16 disclosure not required to establish reliability under *Daubert*); *id.* at 1246 n.13 (majority recognizing same point).

The Tenth Circuit clarified the level of information and detail necessary to meet the requirements of Rule 16 in *United States v. Brown*, 592 F.3d 1088, 1089 n.2 (10th Cir. 2009). In *Brown*, the government provided a fingerprint examiner's CV and report; the summary of testimony stated that the expert "will testify that she compared the defendant's known fingerprints found on fingerprints [sic] cards with a latent fingerprint found" on a job application, and "will testify the latent fingerprint on the job application is the defendant's fingerprint." *United States v. Brown*, 592 F.3d 1088, 1089 n.2 (10th Cir. 2009). At trial, the expert testified that she found fourteen identical points of comparison between the defendant's known print and the latent print found at the crime scene. *Id.* at 1089. The Tenth Circuit "was unpersuaded by Brown's argument that because the summary failed to mention fourteen identical points of comparison or specifically describe the expert's methodology, the summary was deficient." *Id.* at 1091. A sufficient statement of the expert's opinion and anticipated testimony was that "the fingerprint found at the scene of the crime matched Brown's." *Id.* at 1091.

(1) Sufficiency of discovery on Laurence Mueller

Provision of Mueller's CV satisfies the requirement of Rule 16 to include a description of the witness's qualifications. *See United States v. Mehta*, 236 F. Supp. 2d 150, 155 (D. Mass. 2002). Defendant also provided Mueller's CV to the Court as an exhibit to Defendant's motion to exclude DNA evidence. [Doc. No. 442 (Exhibit 19, submitted to Court on CD)]

Provision of Mueller's seven-page declaration sufficiently notified the Government of Mueller's opinions and the bases and reasons for those opinions. This declaration states that Mueller

has reviewed Carrie Zais's laboratory reports "as well as available Statistics Reports and Popstats 5.7.4 DNA Profile Reports." [Doc. No. 539, Exhibit 1 at p. 2] Mueller states his opinions that a statement of source attribution is not based upon sufficient facts or data, and is not the product of reliable scientific principles and methods; he asserts that the quantitative limit justifying a source attribution is arbitrary and that the assertion of uniqueness is undermined by an Arizona study. [*Id.* p. 2] Mueller's declaration cites an article he wrote as the basis for these opinions. [*Id.* pp. 2-3] Mueller also states his opinions that laboratory error must be considered in determining whether a source attribution can be made and also in making statistical calculations. [*Id.* pp. 4-6] From the nature of Mueller's opinions, it does not appear there was any foundational "data" to be disclosed.

(2) Sufficiency of discovery on Simon Cole

Provision of Cole's CV satisfies the Rule 16 requirement to include a description of the witness's qualifications. *See United States v. Mehta*, 236 F. Supp. 2d 150, 155 (D. Mass. 2002). Cole's CV was also provided as Defendant's Exhibit II at the August 2012 *Daubert* hearing on Defendant's motion to exclude the Government's fingerprint evidence [Doc. No. 419].

Provision of Cole's nine-page declaration sufficiently notified the Government of Cole's opinions and the bases and reasons for those opinions. Although the Government asserts that Defendant has not provided foundational data, given the nature of Cole's proposed testimony, it appears that there is none to provide; Cole testified at the August 21, 2012 *Daubert* hearing that he had not analyzed the fingerprints, had not written a report, and had only written that nine-page declaration. [8/21/12 Hearing on Defendant's motion to exclude fingerprint evidence, pp. 228-29] Defendant offers Cole to opine on the general issue of whether latent fingerprint identification is reliable, not on whether the particular fingerprint identification in this case is erroneous. Cole's declaration states his opinions that: no published studies measure "the accuracy of latent print

examiners' conclusions of individualization"; "no population studies have been put forward that would support a claim of 'individualization'"; and the "claim to be able to effect individualizations has not been accepted—and indeed it has been explicitly rejected—by the scientific community." [Defendant's Exhibit HH, p. 3 (from 8/30/12 *Daubert* hearing on Defendant's motion to exclude fingerprint evidence)] Cole's declaration states that these opinions are based on his research and publishing over the past fifteen years, together with his "extensive review of the literature produced by the fingerprint profession." [Exhibit HH, pp. 2, 4]

(3) Sufficiency of discovery on Adina Schwartz

As with Mueller and Cole, the Government asserts that Defendant failed to comply with the Rule 16 requirement to provide the bases and reasons for Schwartz's opinions, and also failed to provide foundational data. [Doc. No. 537, p. 7] The Government also finds fault with the fact that Defendant provided "only a declaration and CV from Schwartz." [*Id.*] However, Defendant offered Schwartz's CV as Exhibit 2 on the Exhibit CD to Doc. No. 418, as well as Defendant's Exhibit B at the August 2012 *Daubert* hearing on Defendant's motion to exclude the Government's firearm identification evidence [Doc. No. 418]. As explained above, Defendant's provision of Schwartz's CV satisfies the Rule 16 requirement to include a description of the witness's qualifications.

Furthermore, provision of Schwartz's 61-page declaration sufficiently notified the Government of Schwartz's opinions and the bases and reasons for those opinions. In that declaration, Schwartz strives "to apprise the Court of fundamental doubts as to the reliability of both the underlying premises and the methodology of firearms and toolmark identification," as well as "to inform the Court of significant disagreements within the discipline of firearms and toolmark identification." [Doc. No. 537, Ex. 1, ¶ 9] In her declaration, Schwartz attacks both the premise that each tool produces unique, reproducible marks and the accuracy of the methods used by examiners

to determine whether toolmarks are so similar that they must have been made by the same tool. [*Id.* at ¶ 11] The lengthy declaration contains an extended discussion of the bases of Schwartz's opinions that firearm identification is inherently unreliable, including discussion of scholarly articles in the field. However, Schwartz's declaration contains no discussion or analysis of the specific conclusions reached by the Government's firearms examiner in this case. Although the Government asserts that Defendant has not provided foundational data, given the fact that Schwartz's proposed testimony appears to be limited to the reliability of methods of firearm identification generally, it appears that there is none to provide.

C. Conclusion on Rule 16 Requirements

Defendant's Rule 16 notice was timely and adequate with respect to the three defense witnesses. The Tenth Circuit opinion in *Brown* shows that Rule 16 disclosures are not required to include the extensive and exhaustive level of detail and information for which the Government is arguing. The Court concludes that Defendant's disclosures on Mueller, Cole, and Schwartz meet the requirements of Rule 16.

Even if Defendant's discovery were late or insufficient, the Court need not consider this issue further than to observe that it is the Government's burden to "demonstrate" prejudice—either from the timing or the adequacy of Defendant's disclosure. *See United States v. Kenyon*, 481 F.3d 1054, 1062 (8th Cir. 2007). Summarily asserting prejudice would not satisfy the Government's burden to demonstrate prejudice. *See United States v. Apperson*, 441 F.3d 1162, 1204 (10th Cir. 2006) (regarding denial of motion to continue). The purposes of Rule 16 include minimizing surprise from unexpected expert testimony and allowing a party to prepare for cross-examination and presentation of opposing experts. Fed. R. Crim. P. 16 advisory committee's note to 1993 amendment. The Government does not assert that it has insufficient time to prepare for trial or that

there is unfair surprise; thus, the Government has not demonstrated that the purposes of the Rule are frustrated. *See United States v. Thornton*, 642 F.3d 599, 606 (7th Cir. 2011); *United States v. Stevens*, 380 F.3d 1021, 1026 (7th Cir. 2004). In addition, the Court does not find any indication that Defendant has acted in bad faith.

Even if the Court had found any violation, the Court would have been required to impose the least severe sanction that would fulfill the purposes of Rule 16. *Brown*, 592 F.3d at 1090. Exclusion of expert evidence “is almost never imposed in the absence of a constitutional violation or statutory authority for such exclusion.” *United States v. Charley*, 189 F.3d 1252, 1262 (10th Cir. 1999). The Government has not carried its burden of showing that the extreme sanction of exclusion would be warranted in this case, even if the Court had found any violation.

II. Admissibility of Testimony Under *Daubert* and Rule 702

A. Legal Standard of Admissibility

The admission of expert testimony is governed by Federal Rule of Evidence 702 and the Rule's interpretation by the Supreme Court in *Daubert*, *Joiner*, and *Kumho Tire*. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993); *General Elec. Co. v. Joiner*, 522 U.S. 136 (1997); *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999). Rule 702 was amended in 2000 in response to *Daubert* and *Kumho Tire*. Fed. R. Evid. 702 advisory committee's note. The 2000 amendment affirms the trial court's role as gatekeeper, excluding unreliable expert testimony.¹ *Id.* Rule 702 provides:

¹ Rule 702 was further amended in 2011 as part of the restyling of the Rules of Evidence, to make them more easily understood; these changes are “stylistic only” and there “is no intent to change any result in any ruling on evidence admissibility.” Fed. R. Evid. 702 advisory committee's note to 2011 amendment.

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

The proponent of the evidence has the burden of showing that expert evidence is admissible, by a preponderance of proof. *Daubert*, 509 U.S. at 592 n.10; *United States v. Orr*, 692 F.3d 1079, 1091 (10th Cir. 2012); Fed. R. Evid. 702 advisory committee's note to 2000 amendment. The trial court has "wide latitude" in exercising its discretion to admit or exclude expert testimony. *Bitler v. A.O. Smith Corp.*, 400 F.3d 1227, 1232 (10th Cir. 2004); *see Kumho*, 526 U.S. at 147 ("broad latitude" in determining how to determine reliability and in ultimate reliability determination).

The trial court "'generally must first determine whether the expert is qualified.'" *United States v. Avitia-Guillen*, 680 F.3d 1253, 1256 (10th Cir. 2012) (quoting *United States v. Nacchio*, 555 F.3d 1234, 1241 (10th Cir. 2009) (en banc)). "If the expert is sufficiently qualified, then 'the court must determine whether the expert's opinion is reliable by assessing the underlying reasoning and methodology.'" *Id.* (quoting *Nacchio*, 555 F.3d at 1241). Trial courts have the responsibility of ensuring that scientific testimony or evidence is both relevant and reliable. *Daubert*, 509 U.S. at 589. "Relevant evidence 'means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.'" *Bitler*, 400 F.3d at 1234 (quoting Fed. R. Evid. 401). The trial court acts as gatekeeper, making "a preliminary assessment of whether the reasoning or

methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.” *Daubert* 509 U.S. at 592-93. The gatekeeping function requires a “sufficiently developed record” to allow a determination of whether the trial court “properly applied the relevant law.” *Avitia-Guillen*, 680 F.3d at 1258 (quoting *United States v. Nichols*, 169 F.3d 1255, 1262 (10th Cir. 1999)).

Daubert sets forth a non-exclusive list of factors that may be considered, including: (1) whether the theory or technique can be, and has been, tested; (2) whether the theory has been subjected to peer review and publication; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; and (5) whether the theory is generally accepted in the relevant scientific community. *Daubert*, 509 U.S. at 593-94. The trial court need not apply all of these factors. *Avitia-Guillen*, 680 F.3d at 1258. The trial court may consider additional relevant factors. *Kumho Tire*, 526 U.S. at 149-50.

The *Daubert* Court emphasized that the inquiry under Rule 702 is “a flexible one.” *Daubert*, 509 U.S. at 594. “Its overarching subject is the scientific validity—and thus the evidentiary relevance and reliability—of the principles that underlie a proposed submission.” *Id.* at 594-95. “The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate.” *Id.* at 595. *Joiner* added that “conclusions and methodology are not entirely distinct from one another.” *Joiner*, 522 U.S. at 146. A court need not admit opinion evidence “that is connected to existing data only by the *ipse dixit* of the expert.” *Id.* “A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.” *Id.*

The Federal Rules encourage the admission of expert testimony. 4 Jack B. Weinstein & Margaret A. Berger, *Weinstein's Federal Evidence* § 702.02[1], at 702-5 (Joseph M. McLaughlin, ed., Matthew Bender 2d ed. 2012). The *Daubert* Court recognized the “liberal thrust” of the Federal

Rules and their "general approach of relaxing the traditional barriers to 'opinion' testimony." *Daubert*, 509 U.S. at 588 (internal quotation marks omitted). "The presumption under the Rules is that expert testimony is admissible." 4 Weinstein & Berger, *supra*, § 702.02[1], at 702-5. "A review of the caselaw after *Daubert* shows that the rejection of expert testimony is the exception rather than the rule." Fed. R. Evid. 702 advisory committee's note to 2000 amendment. As the Advisory Committee explained, "'the trial court's role as gatekeeper is not intended to serve as a replacement for the adversary system.'" *Id.* (quoting *United States v. 14.38 Acres of Land*, 80 F.3d 1074, 1078 (5th Cir. 1996)). "As the Court in *Daubert* stated: 'Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.'" *Id.* (quoting *Daubert*, 509 U.S. at 596). These conventional devices, rather than exclusion under the restrictive and elevated standard set by *Frye*, are "the appropriate safeguards where the basis of scientific testimony meets the standards of Rule 702." *Daubert*, 509 U.S. at 596. "As the ultimate fact-finder, it is the jury that must determine, finally, where the truth in any case lies, and the district judge as gatekeeper may not usurp this function." *United States v. Frazier*, 387 F.3d 1244, 1272 (11th Cir. 2004).

B. Qualifications of Expert Witnesses

Rule 702 requires the trial court to determine whether the witness is qualified as an expert by knowledge, skill, experience, training, or education. The record must show that the trial court has performed its duty as gatekeeper; the court is not, however, required to "extensively explain" its determinations on witness qualifications. *Avitia-Guillen*, 680 F.3d at 1260; *United States v. Roach*, 582 F.3d 1192, 1207 (10th Cir. 2009) (more is required than conclusory statement). Rule 702 sets a "liberal standard" for qualifying a witness as an expert. *United States v. Gomez*, 67 F.3d 1515, 1525-26 (10th Cir. 1995); 4 Weinstein & Berger, *supra*, § 702.04[1][a], at 702-50. "Rule 702

only requires that an expert possess 'knowledge, skill, experience, training, or education' sufficient to 'assist' the trier of fact, which is 'satisfied where expert testimony advances the trier of fact's understanding to any degree.'" *Robinson v. Geico Gen. Ins. Co.*, 447 F.3d 1096, 1100 (8th Cir. 2006) (emphasis added) (internal quotation marks omitted).

It is an abuse of discretion to exclude a witness as an expert if the witness is "generally qualified." 4 Weinstein & Berger, *supra*, § 702.04[1][a], at 702-52 n.6. A witness who "lacks expertise in specialized areas that are directly pertinent to the issues in question" is qualified "if the witness has educational and experiential qualifications in a general field related to the subject matter of the issue in question." *Id.* § 702.04[1][a], at 702-51 to 702-52; see *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 741 (3d Cir. 1994) [hereinafter *Paoli II*] ("We have eschewed imposing overly rigorous requirements of expertise and have been satisfied with more generalized qualifications."). The trial court has broad discretion to determine the qualifications of a witness. *Vargas*, 471 F.3d at 262.

"It is not required that experts be 'blue-ribbon practitioners' with optimal qualifications." *Id.* (quoting *United States v. Mahone*, 453 F.3d 68, 71 (1st Cir. 2006)). To be qualified as an expert, a witness need not have the particular degree or training which the court believes would be the most appropriate. 4 Weinstein & Berger, *supra*, § 702.04[1][a], at 702-51. For example, in a toxic tort case, it was an abuse of discretion to exclude testimony on the cause of a plaintiff's physical and emotional injuries on the ground that the witness lacked a degree in medicine or chemistry; the witness was adequately qualified by her extensive research in the toxicology of PCBs. *In re Paoli R.R. Yard PCB Litig.*, 916 F.2d 829, 855 (3d Cir. 1990) [hereinafter *Paoli I*]. A witness, however, "should have achieved a meaningful threshold of expertise' in the given area." *Levin v. Dalva*

Brothers, Inc., 459 F.3d 68, 78 (1st Cir. 2006) (quoting *Prado Alvarez v. R.J. Reynolds Tobacco Co.*, 405 F.3d 36, 40 (1st Cir. 2005)).

As indicated by the use of the disjunctive "or" in Rule 702, any one of the five bases listed in the Rule may be sufficient to qualify a witness as an expert: "knowledge, skill, experience, training, or education." *Lavespere v. Niagara Mach. & Tool Works, Inc.*, 910 F.2d 167, 176 (5th Cir. 1990), *abrogated on other grounds by Little v. Liquid Air Corp.*, 37 F.3d 1069, 1075 n.14 (5th Cir. 1994); 4 Weinstein & Berger, *supra*, § 702.04[1][c], at 702-57; 29 Charles Alan Wright & Victor James Gold, *Federal Practice and Procedure* § 6265 (1997 & Supp. 2012). None of the bases is essential, and none is ranked more highly than another. *United States v. Anderson*, 446 F.3d 870, 875 (8th Cir. 2006).

"Gaps in an expert witness's qualifications or knowledge generally go to the weight of the witness's testimony, not its admissibility." *Robinson*, 447 F.3d at 1100 (internal quotation marks omitted). The factual basis of an expert's opinion goes to credibility, not the admissibility of the testimony; the opposing party can challenge the opinion on cross-examination. *First Union Nat'l Bank v. Benham*, 423 F.3d 855, 862 (8th Cir. 2005).

A lack of practical experience does not prevent a witness from qualifying as an expert. Any one of the five bases may be sufficient, and no basis is essential. 4 Weinstein & Berger, *supra*, §§ 702.04[1][c-d]. The focus is on whether the witness has sufficient expertise to assist the jury. *Id.* § 702.04[1][d]. This requirement is satisfied if expert testimony "advances the trier of fact's understanding to any degree." 29 Wright & Gold, *supra*, § 6265 (emphasis added). Courts find witnesses qualified as experts based on "only a relatively modest degree of specialized knowledge." *Id.*

In *Velasquez*, the Third Circuit held that a witness was qualified as an expert by eight years of "self-directed research" and co-authorship of a law review article on the subject; Professor Denbeaux had read "nearly all of the literature on the subject," had been involved in four court cases, and had been named an American Bar Association Fellow for his research in the field. *United States v. Velasquez*, 64 F.3d 844, 851, 847 n.4 (3d Cir. 1995). The professor had no formal training, had never attended a seminar, and had never been a member of a professional organization for handwriting analysis. *Id.* at 847. The *Velasquez* court held that the professor had sufficient specialized knowledge of the limitations of handwriting analysis, and was qualified to testify on the lack of standards and the possibility for error in handwriting analysis. *See* 29 Wright et al., *supra*, § 6265 (education sufficient to qualify an expert may be based on "informal self-study or independent research"). The *Velasquez* court recognized that the Federal Rules show a "strong and undeniable preference for admitting any evidence having some potential for assisting the trier of fact." 64 F.3d at 849 (internal quotation marks omitted).

In contrast, the Eleventh Circuit held that the trial court did not abuse its discretion in excluding testimony by the same witness, Professor Denbeaux. *United States v. Paul*, 175 F.3d 906, 912 (11th Cir. 1999). The district court had granted the motion to exclude testimony by Denbeaux on the ground that it would confuse the jury. *Id.* at 909. The Eleventh Circuit, however, held that Denbeaux was not qualified "to testify as an expert in handwriting analysis" because he did not possess "an acceptable degree of 'knowledge'" and would not have assisted the jury. *Id.* at 912. The Eleventh Circuit stated that Denbeaux was not "any more qualified to testify as an expert on handwriting analysis than a lay person who read the same articles." *Id.*

The Eleventh Circuit found it important that Denbeaux had done "virtually no further research or writing" since 1989, suggesting that he was not up to date in the field. *Id.* Also

rendering the *Paul* opinion less persuasive is the fact that the Eleventh Circuit did not carefully separate the issue of Denbeaux's lack of qualification as a handwriting analyst from the question of whether he was qualified to offer general background information to educate the jury. The Court believes that the Third Circuit opinions, *Velasquez* and *Paoli I*, are more faithful to the principles and philosophy of the Federal Rules and *Daubert*.

(1) Qualifications of Laurence Mueller

The Government argues that scholarly research and writing do not qualify Mueller to comment on the conclusions reached by the Government's DNA expert, or to "render any opinion as a DNA analyst." [Doc. No. 539, pp. 1, 3, 5] The Government asserts that "Mueller, although conversant in the literature, is most certainly not qualified with any experience in the relevant discipline of DNA analysis." [Doc. No. 539, p. 3; Doc. No. 635, p. 2] Mueller is not a DNA analyst, but a professor of ecology and evolutionary biology, with no formal training or experience in interpreting data from forensic DNA testing. [Doc. 539, pp. 3-4] Mueller did take a three-day course on ABI Prism 3100 Series Genetic Analyzers (not the genetic analyzer used in this case) and AmpF1STR. [Doc. 539, p. 4] The Government points out that only seven of Mueller's published articles listed in his CV concern forensic science involving human beings, two of which were letters to the editor; Mueller's own population studies are on fruit flies. [Doc. No. 539, p. 5; Doc. 635, p. 2]

Defendant argues that Mueller is qualified to testify as an expert "on the unreliability of the government's failure to account for laboratory error rate and of its source attribution testimony," with testimony limited to the two subjects addressed in Mueller's seven-page declaration: (1) source attribution, and (2) laboratory error rate. [Doc. No. 584, pp. 3, 5] Defendant argues that Mueller is "qualified by virtue of his published research and experience." [Doc. No. 584, p. 1] Mueller is

a Full Professor and Vice Chairman in the Department of Ecology and Evolutionary Biology at the University of California, Irvine. He teaches undergraduate and graduate courses in genetics—including forensic genetics, quantitative methods, and biological research. He has a Ph.D. in Ecology, a B.S. in Chemistry, and an M.A. in Biology. He has done postdoctoral research in population genetics, and has published three books and over one hundred papers on topics including theoretical and experimental population genetics and DNA typing in forensic science. [Doc. No. 584, p. 5] His CV states that he is a member of a number of professional societies. Defendant lists five articles published by Mueller in the field of DNA typing. [Doc. No. 584, p. 6] Defendant asserts that Mueller has consulted in over one hundred criminal cases involving forensic DNA typing.

Mueller's lack of practical experience—which is only one of the five bases for expert qualification—does not prevent him from qualifying as an expert. The Court concludes that Mueller's education and knowledge qualify him to testify as an expert in the field of population genetics, including the topic of source attribution as set forth in Mueller's declaration. Mueller has sufficient expertise to assist the jury by advancing the jury's understanding in this field. *See* 29 Wright & Gold, *supra*, § 6265 (witness has sufficient expertise if testimony will advance jury's understanding "to any degree"; "relatively modest degree of specialized knowledge" may be sufficient). Although much of Mueller's expertise appears to be related to population studies on fruit flies, a witness need not have the particular degree which the Court believes would be most appropriate. Mueller's CV and list of publications demonstrate that he has extensive experience in population genetics, and continues to teach, conduct research, and publish in the field.

The Court concludes, however, that Defendant has not carried his burden of demonstrating that Mueller is qualified to testify as an expert in the field of laboratory error. The Court

acknowledges that the Federal Rules set a liberal standard for qualification as an expert witness; nevertheless, a witness "'should have achieved a meaningful threshold of expertise' in the given area." *Levin v. Dalva Brothers, Inc.*, 459 F.3d 68, 78 (1st Cir. 2006) (quoting *Prado Alvarez v. R.J. Reynolds Tobacco Co.*, 405 F.3d 36, 40 (1st Cir. 2005)). A witness may be qualified in one area, but not in others; the court acts properly to limit the areas of testimony to those in which the witness has sufficient expertise. *Id.* at 78-79. Although it is possible for a witness with no practical experience or training to qualify as an expert based on research and study, the Court does not believe that publication of five scholarly articles rises to this standard. *Cf. Paoli I*, 916 F.2d at 855 ("extensive research"); *Velasquez*, 64 F.3d at 851 (8 years of study). Mueller's declaration asserts that laboratory error is possible and cites some studies and articles. [Doc. No. 539, Exhibit 1, pp. 3-7] These assertions and citations do not demonstrate that Mueller has specialized knowledge or expertise on the issue of laboratory error. Since Defendant has not demonstrated that Mueller has "achieved a meaningful threshold of expertise" on the subject of laboratory error, the Court concludes that Mueller is not qualified to testify on the subject of laboratory error. [Doc. No. 539, Exhibit 1, pp. 3-7 (¶¶ 5-15)]

Defendant's Response shows that Defendant does not intend to offer Mueller as an expert qualified to give an opinion as a DNA analyst. [Doc. No. 582-1, p. 2] As noted above, Defendant states that Mueller's testimony would be limited to the two topics set forth in Mueller's declaration: source attribution and laboratory error. Since the Government argues, however, that Mueller is not qualified to comment on the conclusions reached by the Government's DNA expert, or to "render any opinion as a DNA analyst," the Court specifically concludes that Mueller is not qualified to testify as an expert in the general field of DNA analysis, and is not qualified to testify on whether the conclusions of the Government's DNA analyst are erroneous. Defendant has not demonstrated

that Mueller, with no practical experience or training in DNA analysis, has "achieved a meaningful threshold of expertise" to qualify him to testify as a DNA analyst. In some instances, it is appropriate to require "on-the-job training and work-related experience when they are the only appropriate basis for the proposed opinion." 4 Weinstein & Berger, *supra*, § 702.04[1][d]. The Court concludes that this is one of those instances.

(2) Qualifications of Simon Cole

The Government argues that Cole "is at best an academic and scholar" who "lacks the qualifications to opine on the fingerprint identification evidence the United States anticipates offering." [Doc. No. 538, p. 2] According to Cole himself, "he specializes in the historical and sociological study of the interaction between science, technology, law and criminal justice." [*Id.* p. 3] The Government's position is that Cole's "scholarly opinions with respect to the entire field of fingerprint identification" do not qualify him to give an opinion on the specific fingerprint identification in this case. [*Id.* at pp. 5-6]

But Defendant does not offer Cole to give an opinion on the specific fingerprint identification in this case. Defendant offers testimony by Cole to enlighten the jury on the general subject of "the scientific unreliability of fingerprint identification comparisons." [Doc. No. 583, pp. 3-4, 8] Defendant argues that Cole is "qualified by virtue of his published research and experience." [*Id.* p. 1]

Cole has a Ph.D. in Science and Technology Studies from Cornell University. [*Id.* p. 5] Cole is an Associate Professor and Chair of the department of Criminology, Law & Society at the University of California, Irvine, where he has been employed since 2002. [*Id.*] Courses he teaches include Forensic Science and Society; Historical Criminology; and Science, Technology and Law. [*Id.* pp. 5-6] Cole's declaration states that much of his research and publishing over the past fifteen

years involved "the study of the scientific basis (or lack thereof) for the testimonial claims made by fingerprint examiners." [Exhibit HH, p. 2] Cole published "an award-winning, peer-reviewed university press book" on fingerprinting, which is cited as an example of recent challenges to the reliability of latent fingerprint identifications in the National Academy of Science's authoritative report—National Research Council, *Strengthening Forensic Science in the United States: A Path Forward*, p. 43 (2009). [*Id.*] He authored or co-authored more than eighteen scholarly articles and book chapters, three encyclopedia articles, and eight magazine articles on the subject. [Doc. No. 583, p. 6] He has been awarded nine research grants, by the National Science Foundation and the National Institutes of Health, among others. [*Id.*] He has delivered more than forty invited lectures to academic and government organizations, including the National Academy of Science, Harvard University, and the National Commission on the Future of DNA Evidence. [*Id.*] He is a member of the American Judicature Society Commission on Forensic Science & Public Policy. [*Id.*] He is Co-Editor of a scholarly journal, *Theoretical Criminology*. [Exhibit HH, p. 2]

Cole has no practical experience or formal training in fingerprint examination and analysis, as he freely admitted at the *Daubert* hearing on Defendant's motion to exclude the Government's fingerprint evidence. [8/21/12 Hearing, pp. 226-27] Cole testified that he is not a fingerprint analyst, has never worked in a forensic laboratory, has never attended a crime scene, and has done no fingerprint examinations. [*Id.*] Cole spent about two days at a laboratory in the mid-1990s, and later, two weeks at Swedish laboratories. [*Id.* pp. 227-28] Cole looked at some of the case notes, but did not analyze the prints in this case; he did not write a report, but only the nine-page declaration. [*Id.* p. 228]

Defendant is correct in arguing that Cole's lack of practical experience does not prevent him from qualifying as an expert. [Doc. No. 583, p. 7] Any one of the five bases may be sufficient, and

no basis is essential. 4 Weinstein & Berger, *supra*, §§ 702.04[1][c-d]. The focus is on whether the witness has sufficient expertise to assist the jury. *Id.* §702.04[1][d]. This requirement is satisfied if expert testimony "advances the trier of fact's understanding to any degree." 29 Wright & Gold, *supra*, § 6265 (emphasis added). Courts find witnesses qualified as experts based on "only a relatively modest degree of specialized knowledge." *Id.*

Defendant does not offer Simon Cole as a latent print examiner, and does not suggest that Cole would give an opinion on whether the Government expert's fingerprint identification in this case is erroneous. As Cole testified at the *Daubert* hearing, he made no determination regarding this case or the facts of this specific case; instead, Cole's testimony, as reflected in his declaration, would constitute an overall challenge to the reliability of the field of fingerprint identification. [8/21/12 Hearing, p. 229] Defendant argues that Cole is qualified as an expert on the basis of his familiarity with, and contribution to, the relevant peer-reviewed scientific literature. [Doc. No. 583, p. 7]

The Government cites several cases in support of its argument that Cole is not qualified, stating that "other courts have repeatedly excluded his testimony or refused to recognize Cole as a fingerprint identification expert." [Doc. No. 538, pp. 3-5] As Defendant observes, three of these cases apply the *Frye* test, and are not persuasive for that reason. [Doc. No. 583, p. 10 n.5]

In the unpublished New York case, the trial court took judicial notice that fingerprint identification is "generally accepted" in the scientific community and is "always admissible" under the *Frye* test. *People v. Hyatt*, 2001 WL 1750613, *1 (N.Y. Sup. Ct. 2001). The *Hyatt* court excluded Cole's testimony, after ruling that Cole's opinions would have to meet the *Frye* test of being "generally accepted" in the scientific community to be admissible. The court observed—in

obvious dictum—that what Cole offered was "junk science" even under *Daubert*, which, of course was not the standard the New York court was applying. *Id.*

In another unpublished case cited by the Government, a California trial court stated that it had previously "play[ed] it cautious" and allowed Cole to testify in another case. *People v. Lugo*, 2009 WL 2025637, *14 (Cal. Ct. App. 2009). The California trial court stated that "all [Cole] does is serve as a repository for hearsay based on articles that are written in various books"; he has no "hands-on knowledge of the subject matter." *Id.* The trial court denied the motion to allow Cole to testify, saying he was not an expert, but a "general criminalist and really has never made a print comparison in his entire life." *Id.* On appeal, the California Court of Appeal observed that under California's *Frye* test, "fingerprint evidence of the type involved in this case is not subject to challenge." *Id.* at *15.

The Florida court in *Armstrong*, again applying the *Frye* test, ruled that Cole's testimony on the unreliability of fingerprint analysis was irrelevant. *State v. Armstrong*, 920 So. 2d 769, 770 (Fla. Dist. Ct. App. 2006). The court stated that a general critique, not related specifically to the fingerprint identification in the case before the court, was not probative of the guilt or innocence of the defendant, and was therefore inadmissible. *Id.* Since fingerprint identification was "generally accepted," its admissibility could not be challenged—nor could Cole's general critique be admitted to challenge the weight of the fingerprint analysis. *Id.* at 771-72. The defendant could only challenge the state's evidence by presenting an independent fingerprint analysis, by a qualified fingerprint examiner. *Id.*

These three *Frye* cases are irrelevant here, because they apply the "general acceptance" test of *Frye*. These courts subjected Cole's testimony to the same "general acceptance" test, holding that his testimony was not admissible to challenge the admissibility or weight of the fingerprint

identification evidence. These standards and principles are, of course, inapplicable under *Daubert* and Rule 702.

The Government also cites a Third Circuit case, *United States v. Mitchell*, 365 F.3d 215 (3d Cir. 2004). The Government states that the *Mitchell* court "excluded Cole from testifying at trial as to whether latent fingerprint identification is a science." [Doc. No. 538, p. 4] The *Mitchell* opinion does not support the point on which the Government cited it—that "courts had repeatedly excluded" Cole's testimony. [Doc. No. 538, p. 3] As Defendant argues, the Third Circuit in *Mitchell* observed that Cole and two other defense witnesses were "undoubtedly qualified to offer their expert opinions." *Id.* at 246-47. According to the Third Circuit, the trial court had properly ruled that it would allow both specific and general criticisms of latent fingerprint identification, but excluded testimony about whether latent fingerprint identification is a "science." *Id.* at 219, 250-51. The Third Circuit observed that exclusion of testimony by Cole and the other defense witnesses on the first and second point would have been reversible error. *Id.* at 246-47. The Third Circuit affirmed, however, because the trial court was correct to exclude any expert evidence on the third point (which was irrelevant) and the record indicated that the *Mitchell* defendant only offered testimony on the third point. *Id.* at 250.

Decisions by other courts on whether Cole is qualified as an expert are not persuasive when other courts applied different approaches (like the *Frye* test), or when those courts failed to distinguish the qualifications necessary to testify as a fingerprint analyst from the qualifications necessary to give general background information. *Cf.* 29 Wright & Gold, *supra*, § 6265 (decisions on qualification of expert generally have no precedential value). Mistakenly believing that only testimony by a fingerprint analyst would be admissible, the Government dismisses Cole's

qualifications to give scholarly opinions in the form of general background information. [Doc. No. 634, p. 1]

As noted above, the Court believes that the Third Circuit opinions, *Velasquez* and *Paoli I*, are faithful to the principles and philosophy of the Federal Rules and *Daubert*. Recognizing Cole's extensive research and writing, and also acknowledging the "liberal standard" for qualifying a witness as an expert, the Court concludes that Cole is qualified by his knowledge and education to testify as an expert in the general field of the reliability of fingerprint identification, based on Cole's extensive review of the literature and Cole's publications in the field. Based on review of Cole's CV and his testimony at the August 2012 *Daubert* hearing, the Court finds that Cole has "achieved a meaningful threshold of expertise in the given area." *Levin*, 459 F.3d at 78 (internal quotation marks omitted). A witness need not have the particular degree which the Court believes would be most appropriate. And Defendant's expert need not be as qualified as the Government's expert before he is permitted to testify as an expert; the analysis requires the Court to conclude that each witness is qualified—this is not a contest in which only the most qualified witness can testify. *See Mitchell*, 365 F.3d at 245. Provided that the Court determines that Cole is qualified and his testimony is otherwise admissible, the relative qualifications of the experts—and the weight to give their opinions—are matters for the jury. *See United States v. Rutland*, 372 F.3d 543, 546 (3d Cir. 2004) (past experience of experts "properly influences the weight the testimony should receive").

(3) Qualifications of Adina Schwartz

As indicated in her CV, Schwartz obtained her Bachelor of Arts in Philosophy from Oberlin College in 1971 and received her Ph.D. from the Rockefeller University in 1976. In 1985, Schwartz received a Juris Doctorate from the Yale Law School. Currently, Schwartz is a Professor of Police Science and Criminal Justice Administration at the John Jay College of Criminal Justice at the City

University of New York. As a faculty member, Schwartz teaches current and future law enforcement officers and forensic scientists the role of evidence, experts and science in the criminal justice system. She has written and published seven articles reviewing, discussing, and analyzing the literature regarding the field of firearm and toolmark identification, and in doing so has pointed out problems with the reliability of its methodology. She has extensively studied the literature regarding firearm and toolmark identification, and has written and published her own articles on the topic.

The Government argues that Schwartz is not qualified to render an expert opinion *at trial* on firearm and toolmark identification because she “is not a firearms examiner and has no training in the field of firearms examination. She is an academic who has read literature in the field and published her own articles criticizing the field.” [Doc. No. 537, p. 5] Indeed, the record before the Court clearly demonstrates that Schwartz has little or no practical experience or formal training in firearm or toolmark identification. Schwartz is not a trained firearms examiner; she has never worked in a forensic laboratory, has never attended a crime scene, and has done no firearms examinations, though “she has gone to a ballistics lab and looked at cartridge cases under a comparison microscope on two occasions.” *Commonwealth v. Meeks*, 2006 WL2819423 at *29 (Mass. Super. Ct. Sept. 28, 2006). Schwartz looked at the Government’s firearms examiner’s report, *see* Doc. 582-1 at p. 2 and Deft’s hearing Ex. C, but she did not analyze the actual firearms, bullets, and cartridge casings in this case. It also appears that Schwartz did not write a report, but only her 61-page declaration. Based on the foregoing, the Court agrees with the Government that Schwartz is not qualified to offer an opinion regarding the accuracy and reliability of the specific firearm examination conducted by Katharina Babcock in this case. However, Defendant does not offer Schwartz to give an opinion on the specific firearm identification in this case. Defendant offers her testimony to enlighten the jury on the more general subject of “the scientific unreliability of the

government's firearm and toolmark identification evidence." [Doc. No. 582, p. 3] Defendant argues that Schwartz is "qualified by virtue of her published research and experience." [*Id.*, p. 1] Defendant is correct in arguing that Schwartz's lack of practical experience does not entirely prevent her from qualifying as an expert. [Doc. No. 582, pp. 7-8]

In ruling on McCluskey's *Daubert* motion challenging the Government's firearm identification evidence, the Court observed that, "Professor Schwartz's academic background does not appear to be one that would have prepared her to analyze the reliability of toolmark identification." *See* Doc. 806 at 18. This point, together with indications of bias in her approach and scholarly analysis, led the Court to give little weight to Schwartz's criticisms of the AFTE method of firearm examination in ruling on that *Daubert* motion. *See id.* at 19. The question then before the Court was whether Schwartz's criticisms were sufficient to show that toolmark identification evidence was unreliable and inadmissible. In deciding that question, it was appropriate for the Court to evaluate the strength and persuasiveness of Schwartz's opinions.

The question currently before the Court is quite different. The Court now must decide whether Schwartz's testimony could "advance[] the trier of fact's understanding to any degree." 29 Wright & Gold, *supra*, § 6265 (emphasis added). The Tenth Circuit has stated that Rule 702 sets a "liberal standard" for qualifying a witness as an expert. *Gomez*, 67 F.3d at 1525-26. Courts find witnesses qualified as experts based on "only a relatively modest degree of specialized knowledge." *Id.* It is the Court's role to make a preliminary determination of whether Schwartz has sufficient expertise to assist the jury; it is the jury's role to assess any potential bias and the weight to give a witness's opinion. *Cruz-Vazquez v. Mennonite Gen. Hosp.*, 613 F.3d 54, 59 (1st Cir. 2010); *see United States v. Baldrige*, 559 F.3d 1126, 1135 (10th Cir. 2009) (proper subject for cross-examination of any witness is question of bias). Considerations such as a person's "status as an

expert witness only for one side of an issue” go to the probative weight of testimony, and are not proper bases to exclude a proposed expert witness. *Cruz-Vazquez*, 613 F.3d at 59.

Schwartz has extensively studied the literature on firearm identification and has published seven articles and chapters in treatises in this field, including the *Journal of Forensic Sciences*, *Columbia Science & Technology Law Review*, and *Psychological and Scientific Evidence in Criminal Trials*. She has also received a research grant from John Jay College to analyze errors found in the firearms unit of the Michigan State Police forensics lab. Self-directed research, familiarity with the literature, and publications in a field of study can be a sufficient basis for qualification as an expert. *See Velasquez*, 64 F.3d at 847, 851; *see* 29 Wright & Gold, *supra*, § 6265 (education sufficient to qualify an expert may be based on “informal self-study or independent research”). As previously discussed, only one of the five bases of expertise may be sufficient, and no basis is essential. 4 Weinstein & Berger, *supra*, § 702.04[1][c-d]. “It is not required that experts be ‘blue-ribbon practitioners’ with optimal qualifications.” *Vargas*, 471 F.3d at 262. A witness need not have the particular degree or training which the court believes would be the most appropriate. 4 Weinstein & Berger, *supra*, § 702.04[1][a], at 702-51.

For the same reasons that the Court discussed with regard to Mueller and Cole, *supra*, it concludes that Schwartz has sufficient education and knowledge to qualify her to testify as an expert with regard to the limitations on the reliability of firearm and toolmark identification as discussed in the relevant literature. Her testimony will be strictly limited to this subject matter.²

² The Court is aware that in reaching this decision, it diverges from *United States v. Taylor*, 704 F. Supp.2d 1192 (D.N.M. 2009) (Johnson, J.). The *Taylor* court was persuaded by the Eleventh Circuit’s decision in *Paul*, 175 F.3d 906 (11th Cir. 1999). However, as more fully discussed above, this Court believes that the Third Circuit’s approach in *Velasquez* is more in line with the “liberal standard” for qualifying an expert witness set forth in Rule 702. *See United States v. Gomez*, 67 F.3d 1515, 1525-26 (10th Cir. 1995).

C. Reliability and Relevancy of Expert Testimony

In addition to determining whether a witness is qualified, the Court must determine whether the proposed testimony is both relevant and reliable. *Avitia-Guillen*, 680 F.3d at 1241; *Bitler*, 400 F.3d at 1234.

The Government "contends that Mueller will offer testimony that DNA analysis is *inherently* unreliable due to the supposed error prevalent in the nation's DNA laboratories in general." [Doc. No. 539, p. 3] The Government argues that Mueller's testimony should be excluded from trial because his testimony would not be specific to the DNA methodology or analysis used in this case, but instead he would offer general testimony that the field of DNA analysis is unreliable. [Doc. No. 539, pp. 2-3]

The Government argues that Cole's testimony should be excluded from trial because his testimony would be "offered to generally attack the validity of fingerprint evidence" and to assert that "the entire field of fingerprint identification is invalid and unreliable." [Doc. No. 538, pp. 2, 5] Cole has formed "scholarly opinions with respect to the entire field of fingerprint identification solely by dwelling a purely academic realm," the Government contends, and is not qualified "to render an opinion on the findings reached by the United States' fingerprint examination expert." [Doc. No. 538, pp. 5-6; Doc. No. 634, p. 1]

The Government argues that Schwartz's testimony should be excluded because she could only offer scholarly opinions that "the entire field of firearm identification is invalid and unreliable." [Doc. No. 537, p. 2] According to the Government, Schwartz's testimony is inadmissible because she "is not qualified to opine on the firearm and toolmark identification in this case." [*Id.* p. 5 (emphasis added)]

Thus the Government argues that the Court should exclude testimony from Mueller, Cole, and Schwartz because their testimony would be offered to generally attack the reliability of the entire fields of DNA analysis, fingerprint identification, and firearm and toolmark identification, respectively. The Government assumes that if Defendant's witnesses are not qualified to offer expert opinions on the particular conclusions reached by the Government's expert witnesses in this case, the testimony of Defendant's witnesses is inadmissible.

Contrary to the Government's assumption, a party may use an expert to present background information to the jury, which need not be based on personal knowledge or applied to the facts of the case. 4 Weinstein & Berger, *supra*, § 702.02[2]. Rule 702 explicitly allows an expert witness to testify "in the form of an opinion *or otherwise*," thus indicating that experts may do more than offer opinions. The Advisory Committee Note to Rule 702 specifically endorses use of an expert to offer background information to educate the jury:

Most of the literature assumes that experts testify only in the form of opinions. The assumption is logically unfounded. The rule accordingly recognizes that an expert on the stand may give a dissertation or exposition of scientific or other principles relevant to the case, leaving the trier of fact to apply them to the facts.

See United States v. Mulder, 273 F.3d 91, 102 (2d Cir. 2001) (expert may present background information to help jury understand issues); 29 Charles Alan Wright & Victor James Gold, *Federal Practice and Procedure* § 6263 & n.32 (1997 & Supp. 2012) (experts may describe recognized principles, provide general background, or simply explain other evidence). The Government's criticism that the testimony of Defendant's expert witnesses would not be specifically applied to the facts of this case is not a basis for exclusion:

If the expert purports to apply principles and methods to the facts of the case, it is important that this application be conducted reliably. Yet it might also be important in some cases for an expert to educate the factfinder about general principles, without ever attempting to apply these principles to the specific facts of the case. For

example, experts might instruct the factfinder on the principles of thermodynamics, or bloodclotting, or on how financial markets respond to corporate reports, without ever knowing about or trying to tie their testimony into the facts of the case. The amendment does not alter the venerable practice of using expert testimony to educate the factfinder on general principles.

Rule 702 advisory committee's note to 2000 amendment. A law enforcement officer testifying about the modus operandi of drug dealers is a common example of background information presented to educate the jury. 4 Weinstein & Berger, *supra*, § 702.04[1][c], at 702-58. For instance, an expert may be used to testify that a particular amount of a controlled substance indicates trafficking rather than possession for personal use. *United States v. McDonald*, 933 F.2d 1519, 1521 (10th Cir. 1991); *see also United States v. Orr*, 692 F.3d 1079, 1102 (10th Cir. 2012) (Holloway, J., concurring and dissenting) (scientific discourse about fuel testing was proper matter for expert testimony); *United States v. Rodriguez-Felix*, 450 F.3d 1117, 1123-24 (10th Cir. 2006) (concluding that "[e]xpert evaluation of eyewitness testimony—in the abstract" may be admissible in limited circumstances).

The Government also contends that testimony from Mueller, Cole, and Schwartz should be excluded because Defendant would offer these witnesses at trial "to, in effect hold a *Daubert* hearing in front of the jury." [Doc. No. 539, p. 3; Doc. No. 538, p. 3; Doc. No. 537, p. 3] The Government appears to assume that the Court's gatekeeping role means that, if the Court concludes that the Government's expert evidence is admissible, Defendant is not entitled to present contrary evidence to challenge that evidence at trial—in front of the jury. Defendant responds that *Daubert* contemplates the presentation of contrary evidence by a party opposing expert evidence. [Doc. No. 584, pp. 2-3; Doc. No. 583, pp. 9-11; Doc. No. 582, pp. 9-11]

The Court agrees with Defendant on this point; *Daubert* specifically envisions that the opposing party may challenge expert evidence both through "[v]igorous cross-examination" and through "presentation of contrary evidence." *Daubert*, 509 U.S. at 596. "[J]ust because the

threshold for admissibility under Rule 702 has been crossed, a party is not prevented from challenging the reliability of the admitted evidence." *United States v. Jones*, 107 F.3d 1147, 1161 (6th Cir. 1997); *see United States v. Crisp*, 324 F.3d 261, 269-70 (4th Cir. 2003). Instead, the issue of the reliability of expert evidence "is as much for the jury (in the context of courtroom adversary testing) as it is for the court (in the context of a *Daubert* hearing)." *United States v. Mitchell*, 365 F.3d 215, 247 (3d Cir. 2004).

In *Mitchell*, the Third Circuit reaffirmed its approach in *Velasquez*. The *Mitchell* court observed that presentation of opposing experts and cross-examination "play a central role in the Rule 702 regime." *Id.* at 245. As Defendant notes, provided that all experts are qualified, experts "with diametrically opposed opinions may nonetheless both have good grounds for their views," and a trial court "may not make winners and losers through its choice of which side's experts to admit." *Id.* [Doc. No. 584, pp. 11-12; Doc. No. 583, pp. 12-13; Doc. No. 582, p. 12] Instead, the court admits qualified experts from both sides, "with a preference for admitting any evidence having some potential for assisting the trier of fact." *Id.* (internal quotation marks omitted). The Third Circuit stated that "both Rule 702 and the Sixth Amendment's Confrontation Clause permit any criminal defendant to put the prosecution to its proof at trial." *Id.* at 246. As the Third Circuit held in *Velasquez*, "the substantive reliability question is as much for the jury (in the context of courtroom adversary testing) as it is for the court (in the context of a *Daubert* hearing)." *Id.* at 247.

It would be error to preclude Defendant from presenting testimony by qualified opposing experts (provided that testimony is otherwise admissible under Rule 702); "the opposing expert's testimony will ordinarily be helpful to the jury *precisely because it is opposing*—it will help the jury to evaluate the reliability of the opinion offered by the proponent expert." *Id.*; *see Velasquez*, 64 F.3d at 852 (opposing expert would have assisted jury in determining proper weight to give other

party's expert testimony). In *Mitchell*, the Third Circuit recognized this as "a parity principle: If one side can offer expert testimony, the other side may offer expert testimony on the same subject to undermine it, subject, as always to offering a qualified expert with good grounds to support his criticism." *Id.*

Under *Daubert*, the rule is in favor of liberal admission of expert evidence. In fairness, the opposing party must be given the same liberal allowance to present expert evidence, from an opposing expert; cross-examination alone may not provide an effective tool, particularly when the issue is complex. *See Rodriguez-Felix*, 450 F.3d at 1125. This principle allows Defendant to present qualified experts to criticize the reliability of the entire field on which the Government presents expert evidence—DNA evidence, fingerprint identification, or firearms and toolmark identification. *See Velasquez*, 64 F.3d at 851-52 (professor's testimony was admissible to criticize the field of handwriting analysis in general and to criticize the standards employed in the field); *Rodriguez-Felix*, 450 F.3d at 1123-25 (expert testimony may be admissible to challenge or undermine reliability of the field of eyewitness testimony). The Court believes that it is particularly important to allow a defendant to generally challenge the reliability of expert evidence, because the lack of independent crime laboratories may hamper a defendant's access to an independent expert. *See United States v. Crisp*, 324 F.3d 261, 273 (4th Cir. 2003) (Michael, J., dissenting).

Having established the admissibility of general background information, for the purpose of educating the jury, the Court must still determine whether the testimony of each of Defendant's proposed experts is both reliable and relevant.

(1) Reliability and relevancy of Mueller's testimony

Mueller's declaration asserts that source attribution "is not based upon sufficient facts or data and is not the product of reliable scientific principles and methods," and that "there is no scientific

basis to support any quantitative limit as sufficient to declare uniqueness." [Doc. No. 539, Exhibit 1, pp. 2-3] Mueller's declaration shows that his opinions on source attribution are based on Mueller's own education, knowledge, and research, and are grounded in the methods and procedures of science. [Doc. No. 539, Exhibit 1, pp. 1-2, at ¶¶ 2-4] Mueller's CV shows that he has received a number of research grants and has numerous publications in population genetics; Mueller's opinions in this area have been tested by publication and subjected to peer review. *See Daubert*, 509 U.S. at 593-94 (factors include testing, peer review and publication, acceptance by scientific community); *Velasquez*, 64 F.3d at 851 (professor's criticisms of field of handwriting analysis were tested on a limited basis, being published and subjected to peer review). Under "*Daubert's* liberal definition of what constitutes reliable, scientific knowledge," Mueller's testimony is admissible to challenge the reliability of the statistics and source attribution included in the Government's DNA evidence. *Rodriguez-Felix*, 450 F.3d at 1125 (expert testimony may be admissible to challenge reliability of eyewitness identification, in general). Regarding relevance, testimony questioning the reliability of the Government expert's statistics and source attribution can assist the jury in deciding how to assess the weight and credibility of the Government's DNA evidence. The subjects of population statistics and random match probabilities are outside the common knowledge of jurors, and constitute complex issues on which expert testimony can be helpful. *See id.* The Court concludes that Mueller, as an expert in the field of population genetics, may be able to provide background information and general principles that will assist the jury.³ The Court concludes that

³ The Court might reconsider this conclusion, however, if it turns out that Mueller would be relying only on information about matches at nine to twelve STR loci, to which his declaration specifically refers. [Doc. No. 539, Exhibit 1, pp. 2-3] Since the Government's DNA evidence in this case involves testing of fifteen loci, statistics only relating to fewer loci may not turn out to be sufficiently relevant.

Defendant has made an adequate showing that Mueller's testimony on population genetics and source attribution is both reliable and relevant under Rule 702 and *Daubert*.

The Court concludes, however, that Defendant has not carried his burden of showing that Mueller's testimony on laboratory error is admissible. The information provided to the Court does not demonstrate that Mueller's opinions on laboratory error are based on sufficient facts or data, are the product of reliable principles and methods, or that Mueller has reliably applied the principles and methods to the facts of the case. Fed. R. Evid. 702(b)-(d). Defendant has not explained the basis of Mueller's opinions or the methodology by which Mueller reached his conclusions; it is also not clear whether Mueller would rely on his own research or that of others. *See Rodriguez-Felix*, 450 F.3d at 1125. Generalized assertions and speculation are not sufficient; "casual mention of a few scientific studies" is insufficient to demonstrate reliability under Rule 702 and *Daubert*. *See id.* at 1126. The observation in Mueller's declaration (p. 6) that "humans make mistakes" is not a matter of scientific, technical, or specialized knowledge; this is an issue within the common knowledge of jurors. And expert testimony on a matter within the common knowledge of jurors is not admissible because it is not relevant. *Id.* at 1125-26. Defendant has not carried his burden of showing that Mueller's testimony on laboratory error is reliable or relevant; the Court concludes that this testimony is not admissible under Rule 702 and *Daubert*.

(2) Reliability and relevancy of Cole's testimony

Cole's declaration shows that he would provide information "on the limitations of latent print evidence and the lack of support for some claims" made by latent print examiners. [Exhibit HH, p. 2] Cole states that much of his research and publishing in the past fifteen years involved the study of the scientific basis for these claims; he has written a book and many scholarly articles on the topic. He was awarded nine research grants, some from prestigious agencies like the National

Academy of Science. Based on extensive review of the literature in the field, Cole's opinion is that no studies have been published that measure the accuracy of latent print examiners' conclusions of individualization, no population studies have been performed that support a claim of individualization, and that the scientific community does not accept the claim to effect individualizations. [Exhibit HH, pp. 3-4] Cole has applied reliable scientific method by extensively reviewing the literature to ascertain whether such studies have been published. Cole's opinions in this area have been tested by publication and have been subjected to peer review. *See Daubert*, 509 U.S. at 593-94 (factors include testing, peer review and publication, acceptance by scientific community); *Velasquez*, 64 F.3d at 851 (professor's criticisms of field of handwriting analysis were tested on a limited basis, being published and subjected to peer review). Under "*Daubert's* liberal definition of what constitutes reliable, scientific knowledge," Cole's testimony is admissible to challenge the reliability of the Government's fingerprint identification evidence. *See Rodriguez-Felix*, 450 F.3d at 1125 (expert testimony may be admissible to challenge reliability of eyewitness identification).

Regarding relevance, testimony questioning the reliability of the Government expert's fingerprint identification can assist the jury in deciding how to assess the weight and credibility of the Government's evidence. Although most jurors undoubtedly have some familiarity with the subject of fingerprinting, the scientific literature on the extent of its reliability is outside the common knowledge of jurors, and is a subject on which expert testimony can be helpful. *See Rodriguez-Felix*, 450 F.3d at 1125. The Court concludes that Cole, as an expert on the subject of the scientific unreliability of fingerprint identification, may be able to provide background information and general principles that will assist the jury. The Court concludes that Defendant has made an

adequate showing that Cole's testimony is both reliable and relevant under the liberal admissibility standards of Rule 702 and *Daubert*.

(3) Reliability and relevancy of Schwartz's testimony

Schwartz's declaration asserts that there exist in the scientific community "fundamental doubts about both the underlying premises and the method of firearms and toolmark identification." [Doc. No. 537, Exhibit 1, pp. 7-8] Schwartz's declaration shows that her opinions on firearms identification are based on her own education, knowledge, and research, and are grounded in the methods and procedures of science. [Doc. No. 539, Exhibit 1, pp. 1-2, at ¶¶ 2-4] Like Cole, Schwartz has applied reliable scientific methods by extensively reviewing the literature and applying reason to reach her conclusions. Schwartz's CV shows that she has received a research grant to analyze errors found in the firearms identification unit of a Michigan police forensic laboratory and has written articles and other publications relating to the reliability of firearms identification. In addition, Schwartz's opinions in this area have been tested by publication and subjected to peer review. *See Daubert*, 509 U.S. at 593-94 (factors include testing, peer review and publication, acceptance by scientific community); *Velasquez*, 64 F.3d at 851 (professor's criticisms of field of handwriting analysis were tested on a limited basis, being published and subjected to peer review). That peer review includes, in a series of published articles, a spirited exchange of ideas and critiques with leading firearms and toolmark examiner Ronald Nichols, as well as a chapter on firearms and toolmark identification in at least one treatise, *Psychological and Scientific Evidence in Criminal Trials*. Accordingly, under "*Daubert's* liberal definition of what constitutes reliable, scientific knowledge," Schwartz's testimony is admissible to challenge the reliability of the firearms identification methods employed by the Government's expert. *Rodriguez-Felix*, 450 F.3d at 1125 (expert testimony may be admissible to challenge reliability of eyewitness identification, in general).

With regard to relevance, testimony questioning the reliability of the Government expert's testimony regarding firearm identification can assist the jury in deciding how to assess the weight and credibility of the Government's firearms evidence. The subject of firearm identification is outside the common knowledge of jurors, and it is a complicated field in which expert testimony can be helpful. *See id.* The Court concludes that Schwartz, as an expert in the field of the reliability of the firearm identification methods applied by the Government's expert, may be able to provide background information and general principles that will assist the jury.

D. Exclusion of Evidence and the Right To Present a Defense

Defendant argues that his right to present a defense would be violated if the Court were to exclude the testimony of Mueller, Cole, or Schwartz. [Doc. No. 584, pp. 15-16; Doc. No. 583, pp. 16-17; Doc. No. 582, pp. 15-17] The Government correctly points out that the right to present a defense is not absolute, but "may bow to accommodate other legitimate interests in the criminal trial process." *United States v. Nacchio*, 555 F.3d 1234, 1256 n.20 (10th Cir. 2009) (quoting *Young v. Workman*, 383 F.3d 1233, 1237 (10th Cir. 2004)). [Doc. No. 635, p. 4; Doc. No. 634, p. 4; Doc. No. 633, p. 4] Defendant's "opportunity to present evidence is not unfettered—a district court's resolution of evidentiary questions is constrained by the twin prongs of relevancy and materiality, and guided by the established rules of evidence and procedure." *Rodriguez-Felix*, 450 F.3d at 1121. Provided that exclusion of evidence is within the Court's discretion, there is no violation of Defendant's right to present a defense.

CONCLUSION

The Court concludes that Mueller is qualified to testify on the subject of population genetics and source attribution, and that testimony on this subject is reliable and relevant under Rule 702 and

Daubert. The Court concludes that Mueller is not qualified to testify on the subject of laboratory error, or to testify as a DNA analyst; Mueller's testimony on these two subjects is not admissible.

The Court concludes that Cole is qualified to testify on the general subject of the reliability of fingerprint identification, based on the scientific literature, and that testimony on this subject is relevant and reliable under Rule 702 and *Daubert*.

The Court concludes that Schwartz is qualified to testify on the general subject of the reliability of firearms identification, based on the scientific literature, and that testimony on this subject is relevant and reliable under Rule 702 and *Daubert*.

IT IS THEREFORE ORDERED that the Government's Motion To Exclude Defense Witness Laurence Mueller [Doc. No. 539] is **DENIED** with respect to testimony on population genetics and source attribution. The Motion is **GRANTED** with respect to testimony by Mueller on laboratory error, and with respect to testimony as a DNA analyst.

IT IS FURTHER ORDERED that the Government's Motion To Exclude Defense Witness Simon Cole [Doc. No. 538] is **DENIED**, and the Government's Motion To Exclude Defense Witness Adina Schwartz [Doc. No. 537] is **DENIED**.


UNITED STATES DISTRICT JUDGE